

GUEST EDITORIAL

Reflections on Early Cancer Control Efforts

JAMES L. MULSHINE, MD*

*Intervention Section, Department of Cell and Cancer Biology, National Cancer Institute,
Bethesda, Maryland*

What follows are some of my observations and insights obtained from multiple fascinating conversations with an early cancer control investigator, Dr. Lillian Smith, now of Hartford, Connecticut. In my own scientific activity as an active laboratory and clinical investigator in the field of lung cancer screening, these early insights into the problem have fascinated me. I wanted to share them with others who are committed to this field.

The role of serendipity has been central to progress in many areas of science, so it should not be surprising to find the role it played in the formative years of the Memorial Hospital for Cancer and Allied Diseases, the forerunner of today's Memorial Sloan-Kettering Cancer Center. Lillian Smith began her work at Memorial in 1937. Medical school was still 2 years off for her, so she took a secretarial position at the distinctive hospital building, then on Manhattan's West Side, the already world-renowned Memorial Hospital. Dr. James Ewing was the director, and by then this gifted pathologist's reputation in the cancer field was formidable. The country was just beginning to emerge from the Great Depression, partly as a result of projects in the Work Progress Administration (WPA), which was initiated by President Roosevelt. The workers of the WPA in New York State had been assigned to copy 10,000 cancer death certificates as a means of increasing employment. In the days before copying machines, this effort gave medical researchers access to an unprecedented amount of useful information. Smith lost the competition to be a stenographer at this institution, so she became the "statistician" for this new project. In those days, that meant her job was to code the death certificates onto index cards and then, for the correlation analyses, to count the cards. The technology used for this analysis included a comptometer (to calculate the percents) and a typewriter. As simple as this seems, this represented early cancer control research.

The state of the art in health care at that time was clinical diagnosis. If a heavy-smoking shipyard worker presented for medical attention with weight loss and persistent cough, the clinical diagnosis would be tuberculosis. The formal recommendations would be fresh air, rest,

and possibly pneumothorax. The patient would then be sent home to slowly recover or to slowly fail and, possibly, die. Tuberculosis was an age-old scourge and effective drug treatment was still a decade in the future. In this clinical setting, cancer of the lung was not thought of as a significant problem; however, the confluence of two events would begin to change this situation. The first was the availability and the results of reviewing the newly copied death certificate records described above. The second was the formation of a Commission that same year in New York State. The charge of this new Commission was to "make a comprehensive study and survey of the existing facilities, public and private in the state, for the study and treatment and prevention or amelioration of cancer, and for the care of patients afflicted or threatened therewith, the prevalence of such diseases within the state, and any other pertinent facts relating to cancer of which the Governor and Legislature should be informed for the purposes of legislation, if needed, relative to the above matters." Several Memorial Hospital staff members played a prominent role in the Commission's efforts. Dr. Ewing was a member of the Commission and the subcommittee conducting the actual survey included Drs. Russel S. Ferguson, Morton L. Levin, and Arthur Estabrook (statistician).

As summarized in the Commission's formal report to the Legislature in 1939, the medical profession was in the process of developing specialized cancer clinics that were intended to ensure achievement of the cancer care needs of the state. Even then, there was a great concern about the early diagnosis of cancer and the importance of the general practitioner in that process. Thus, a decentralized program of cancer control was recommended as a permanent legacy of this Commission. Also, another

*Correspondence to: James L. Mulshine, MD, Intervention Section, Department of Cell and Cancer Biology, National Cancer Institute, Building 10, Room 12N226, 10 Center Drive, MSC 1906, Bethesda, MD 20892.

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goal was to create a system where reporting cancer cases would be done routinely, so that accurate reconnaissance data could be developed on the real incidence and prevalence of the major cancers. Recording such data was considered essential to the future of effective cancer control.

The full impact of this analysis of death certificates cannot really be gleaned from the summary report of the New York State Legislative Commission. Unmentioned in the report, but a singular finding emerging from this work, was the unexpected frequency of lung cancer among the tuberculosis patients in the analysis of death certificates at Memorial Hospital. The expected frequency of lung cancer was 3%, but what was found after the death certificate tabulation was at least a 3–4 times greater frequency. In certain New York counties, follow-up questionnaires were sent out to the doctors who signed these death certificates. The questions included the date of initial symptoms, the date of diagnosis, the date treatment started, the nature of the treatment, and whether hospitalized and where. Lifestyle questions were *not* included in this analysis, but the puzzling finding was the unexpected increase in lung cancer incidence. After the survey, Dr. Levin, as author of the Commission report, continued to be involved with lung cancer epidemiology research through the rest of his brilliant career. The excess of lung cancer triggered concern about the causal factor or factors. This provocative situation undoubtedly stimulated Dr. Levin and may have led to his later insightful and continued contributions to the field of cancer control.

This relatively primitive epidemiologic work with death certificates all went on quietly in the annex of the original Memorial Hospital on New York's West Side. Dr. Ewing was a major supporter of this and all other cancer control work at this institution as it was apparent to him, even then, that the answer to cancer was only infrequently in the hands of the treating clinician. While the lively Dr. Ewing was omnipresent at Memorial, in the mid-afternoons he would retire to his large horsehair couch in the hallway outside his office. A screen was placed to grant his privacy and the staff had to tiptoe past the screen to get to the offices upstairs. Dr. Ewing retired in 1939 and died in 1943. His health appeared to be declining at the time the survey was being conducted; nevertheless, support for these efforts was one of his many contributions to the control of cancer.

Beyond this Norman Rockwell image, a few interesting observations emerge about the roots of modern cancer control. The first is that interdisciplinary interactions of care providers and public health workers came early and appeared to be a mutually desired interaction. The instinct of Dr. Ewing was to create a multidimensional cancer research and care focus and this is a great example of that. In that old building, clinicians, researchers, and epidemiologists all contributed to the rich intellectual environment. The interdisciplinary cooperation was not driven by commercial motives, but rather by the desire to attract the necessary expertise to provide the best approach to cancer care. The garret-like offices at Memorial for the research staff of the Commission described were quite spartan, but the workers were so consumed with their work that the creature comforts of the facility were secondary. The experience gained from analyzing data from the death certificates of such a large number of individuals gave these investigators a powerful new tool for developing more effective strategies for controlling cancer. From the Summary Report, it is clear that recognition of early diagnosis as a strategy for improving cancer outcomes had firm roots more than 60 years ago. According to Dr. Smith, then working in that electric environment, the excitement of discovery was energizing to all. The centralized data acquisition to obtain broader cancer data sampling is a much copied and refined model that has allowed efficient and effective strategic analysis critical to cancer control. Having the ability to understand actual outcomes from analyzing large segments of our population continues to provide valuable insights into the nature of cancer, as well as other diseases.

Much of what was pioneered at Memorial Hospital has become institutionalized in our modern comprehensive cancer centers. Also, the New York State government played a signal role in mandating this systematic study of the cancer problem, which eventually evolved into a comparable Federal project. In a way, it is humbling to see how clearly the problem of clinical cancer was understood in the 1930s and to think how slow our progress has been in the clinical arena.

Many of these reflections were gained from Dr. Lillian Smith, the "statistician" at Memorial Hospital, who went on to medical school and a subsequent public health practice in the Hartford Health Department. Now retired in West Hartford, the memories of her time in early cancer control efforts at Memorial are still fresh in her mind.